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EXAMINER	
ABDI, AMARA	
ART UNIT	PAPER NUMBER
2624	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,202	CHANG, CHIN	
	Examiner	Art Unit	
	Amara Abdi	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,9,10 and 17-19* is/are rejected.

7)☒ Claim(s) *3-8,11-16 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's response to the last office action, filed April 24, 2008 has been entered and made of record.

Remarks

2. Applicant's arguments with respect to claims 1-2, 9-10, and 17-19 have been considered but are moot in view of the new ground(s) of rejection.

(a) Applicant argues that the combination of cited art does not teach the construction

of an RGB filter set. Giorgianni does not show any function, any color matching function, or any RGB filter set.

However, in response to applicant's arguments, the Examiner disagrees, because Giorgianni et al., teaches the criteria function, as well as the color matching function, and RGB filter set (column 11, line 35-41). The Examiner would like to point out the Applicant to the equations #14 and 15, (column 7, line 60-65; and column 8, line 1-5). As shown in equation#15 (column 8, line 1-5), the aim CIELAB values (L*.sub.aim.sbsb.i, a*.sub.aim.sbsb.i, b*.sub.aim.sbsb.i) represent the color matching function, because each of them is defined as shown in (column 7, line 1-7), comprising X .sub.aim.sbsb.i, Y .sub.aim.sbsb.i, and Z .sub.aim.sbsb.i which represent the CIE 1931 color-matching function (see column 6, line 45-60).

As shown in equation# 12, (column 7, line 55-60), each of elements L*.sub.PE.sbsb.i, a*.sub.PE.sbsb.i, and b*.sub.PE.sbsb.i is read as MacAdam's filter, where the Mac

Adam's filter could be read as RGB filter, which is same as the specification describes. Thus the difference of the these elements as shown in equation# 15 represents the error between the color matching function and the RGB filter, which could be read as a criteria function DELTA.E*.sub.ab as shown in Table I, Entry 7.

Therefore, the rejection of claim 1 based on Giorgianni is proper and should be sustained.

(b) In response, to the Applicant's arguments that no combination of Giorgianni and Meynants could produce the method of claim 1, the Examiner would like to point out the following precision:

Giorgianni et al. disclose a method for determining RGB filter set for RGB LED color sensing (column 31, line 48-66), (the RGB LED is read as scene illumination source), the method comprising:

constructing a criteria function describing an error between desired color matching functions and a spectral response of an RGB filter set (Fig. 11, column 11, line 35-40 and column 27-30), (the criteria function is read as .DELTA.E*.sub.ab), (see equation# 15, column 8, line 1-5).

determining RGB filter set response characteristics based on the criteria function (column 31, line 46-51).

Giorgianni et al. do not explicitly mention the determining of color estimation parameters for substantially optimal color estimation with the RGB filter.

Meynants et al., in analogous environment, teaches a method and device for determining corrected color aspects of a pixel in an imaging device, where determining color estimation parameters (column 7, line 6-8, and column 8, line 5-15) for substantially optimal color estimation with the RGB filter set based upon the determined RGB filter set response characteristics (Figs. 1a, ab, column 6, line 35-38), (the estimating of the chrominance of pixels is read as the same concept as the estimating of color of pixels). (The criteria function has been disclosed by Giorgianni et al.)

All the elements of claim 1 are known by Giorgianni et al. and Meynants et al. references. The only difference is the combination of color estimation parameters with constructing a criteria function.

In addition, the KSR, states: "All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yield predictable results to one of ordinary skill in the art at the time of the invention" (*Adapted from Anderson's Black Rock Inc. v. Pavement Salvage Co.*)

Thus, it would have been obvious to one having ordinary skill in the art to use the color estimation parameters as thought by Meynants et al., with the criteria function as shown by Giorgianni et al., since the color estimation parameters could be used in combination with the criteria function to achieve the predictable results of delivering a performance image quality and at the same time the system is implementable in a sufficiently small circuit allowing for the construction of a single chip CMOS based color imaging device (column 2, line 24-27).

Therefore, the rejection of claims 1, 9, and 17 in view of Giorgianni et al. and Meynants et al. is proper and should be sustained.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2, 9-10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgianni et al. (US 5,609,978) in view of Meynants et al. (US 6,833,868).

(1) Regarding claims 1, 9, and 17:

Giorgianni et al. disclose a method for determining RGB filter set for RGB LED color sensing (column 31, line 48-66), (the RGB LED is read as scene illumination source), the method comprising:

constructing a criteria function describing an error between desired color matching functions and a spectral response of an RGB filter set (Fig. 11, column 11, line 35-40 and column 27-30), (the criteria function is read as .DELTA.E*.sub.ab), (As shown in equation#15 (column 8, line 1-5), the aim CIELAB values (L*.sub.aim.sbsb.i, a*.sub.aim.sbsb.i, b*.sub.aim.sbsb.i) represent the color matching function, because each of them is defined as shown in (column 7, line 1-7), comprising

X .sub.aim.sbsb.i, Y .sub.aim.sbsb.i, and Z .sub.aim.sbsb.i which represent the CIE 1931 color-matching function (see column 6, line 45-60).

As shown in equation# 12, (column 7, line 55-60), each of elements L*.sub.PE.sbsb.i, a*.sub.PE.sbsb.i, and b*.sub.PE.sbsb.i is read as Mac Adam's filter, where the Mac Adam's filter could be read as RGB filter. Thus the difference of the these elements as shown in equation# 15 represents the error between the color matching function and the RGB filter, which could be read as a criteria function DELTA.E*.sub.ab as shown in Table I, Entry 7.)

determining RGB filter set response characteristics based on the criteria function (column 31, line 46-51);

Giorgianni et al. do not explicitly mention the determining of color estimation parameters for substantially optimal color estimation with the RGB filter set based upon the determined RGB filter set response characteristics.

Meynants et al., in analogous environment, teaches a method and device for determining corrected color aspects of a pixel in an imaging device, where determining color estimation parameters (column 7, line 6-8, and column 8, line 5-15) for substantially optimal color estimation with the RGB filter set based upon the determined RGB filter set response characteristics (Figs. 1a, ab, column 6, line 35-38), (the estimating of the chrominance of pixels is read as the same concept as the estimating of color of pixels).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Meynants et al., where estimating pixels

chrominance, in the system of Giorgianni et al. in order to deliver a performance image quality and at the same time the system is implementable in a sufficiently small circuit allowing for the construction of a single chip CMOS based color imaging device (column 2, line 24-27).

(2) Regarding claims 2 and 10:

Giorgianni et al. further disclose the method where determining the RGB filter response characteristics (column 31, line 47-61) comprises evaluating the criteria function (column 11, line 35-40) to determine the RGB filter response characteristics (column 31, line 47-61) resulting in a minimum value of a constraint set criteria function (column 15, line 61-67), (the minimum value a constraint set criteria function is read as 3.1).

5. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giorgianni et al. and Meynants et al., as applied to claim 17 above, and further in view of Guimaraes et al. (US-PGPUB 2003/0156214).

(1) Regarding claim 18:

Giorgianni et al. and Meynants et al. disclose all the subject matter as described in claim 17above. Furthermore, Giorgianni et al. disclose the RGB LED light sources (column 31, line 48-66), (the RGB LED is read as scene illumination source), and constructing a criteria function (Fig. 11, column 11, line 35-40 and column 27-30), (the Examiner interpreted that *M* and *n* can be determine from the criteria function).

Giorgianni et al. and Meynants et al. do not explicitly mention the constructing of the spectral approximation functions.

Guimaraes et al., in analogous environment, teaches an apparatus and method for accurate electronic color capture and reproduction, where the constructing the spectral approximation functions (paragraph [0048], line 1-3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Guimaraes et al., where constructing spectral approximation function, in the system of Giorgianni et al., in order to have the accuracy of color capture, which is a result of the match between the human visual system and the unique set of spectral response curves and the correction matrix used in the invention (paragraph [0028], line 3-6).

(2) Regarding claim 19:

Giorgianni et al. and Meynants et al. disclose all the subject matter as described in claim 18above. Furthermore, Giorgianni et al. disclose the RGB LED light sources (column 31, line 48-66), (the RGB LED is read as scene illumination source).

Giorgianni et al. and Meynants do not explicitly mention the determining of estimated tristimulus values for the RGB LED light sources based upon the spectral approximation functions.

Guimaraes et al., in analogous environment, teaches an apparatus and method for accurate electronic color capture and reproduction, where determining of estimated tristimulus values (paragraph [0008], line 8-10, and paragraph [0015], line 1-4) based upon the spectral approximation functions (paragraph [0048], line 1-3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Guimaraes et al., where determining the estimated tristimulus values, in the system of Giorgianni et al., in order to have the accuracy of color capture, which is a result of the match between the human visual system and the unique set of spectral response curves and the correction matrix used in the invention (paragraph [0028], line 3-6).

Allowable Subject Matter

6. Claims 3-8, 11-16, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information:

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amara Abdi whose telephone number is (571) 270-1670. The examiner can normally be reached on Monday through Friday 7:30 Am to 5:00 PM E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wu Jingge can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amara Abdi/
Examiner, Art Unit 2624

/Jingge Wu/

Supervisory Patent Examiner, Art Unit 2624